Stats 201C Advanced Modeling and Inference

Course site on CCLE: https://ccle.ucla.edu/course/view/16S-STATS201C-1.
Instructor: Qing Zhou (zhou@stat.ucla.edu), OH: M 4:45-6 pm, MS 8979.
TA: Jiaying Gu (gujy.lola@gmail.com), OH: R 10am-12noon, MS 8359.
Prerequisite: Stats 200B and 201B (recommended).
Programming skills (R, C/C++, Matlab, etc.).

Grading

Final grades of this course are composed of three parts:
1. Homework assignments (20%): Four to five homework assignments.
3. Final exam (50%): Open-book, exam week.

Topics

Introduction to advanced topics in statistical modeling and inference. The course covers two groups of topics:

- Statistical inference for incomplete data and hidden variable models;
- Sparse regularization for linear, generalized linear and graphical models.

The course also introduces some computational methods developed for these models and problems. Below is a tentative structure of the course:
1. Incomplete data and the EM algorithm: Assumptions of missing data, EM and its properties, incomplete multivariate normal data.
3. Sparse linear and generalized linear models: Lasso, the group Lasso, statistical inference in high-dimensional settings.

References

- Lecture notes: Will be posted on the CCLE site weekly.
- Schafer, J.L., Analysis of incomplete multivariate data (First edition, 1997).